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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/629,116 | 07/28/2003 | Peter Mardilovich | 200309593-1 | 5931 |

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

| EXAMINER |
|----------------|
| LEE, CYNTHIA K |

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1745 | |

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/629,116 | Applicant(s) MARDILOVICH ET AL. | |
| | Examiner Cynthia Lee | Art Unit 1745 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) 1-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 49-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7/28/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

Applicant's election of Group II (claims 49-67) in the reply filed on 4/25/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed 7/28/2003 has been placed in the application file and the information referred to therein has been considered.

Drawings

The drawings received 7/28/2003 are acceptable for examination purposes.

Specification

The disclosure is objected to because of the following informalities:

It is unclear what the applicants mean by a single chamber and dual chamber throughout the entire specification, especially since the specification [0026] states that the two chambers is not shown in Fig. 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1745

Claims 49 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Agruss (US 3503808).

Agruss discloses a fuel cell comprising a support substrate supporting a cathode, anode, and electrolyte and a plurality of pores formed through said substrate, said pores having a size and shape formed in accordance with a pre-selected desired porosity. The electrolyte is deposited in the pores (2:20-40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agruss (US 3503808).

Agruss discloses a fuel cell comprising a support substrate supporting a cathode, anode, and electrolyte and a plurality of pores formed through said substrate, said pores having a size and shape formed in accordance with a pre-selected desired porosity. The electrolyte is deposited in the pores (2:20-40).

Agruss does not disclose a power-consuming device. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize Agruss' invention by connecting the fuel cell to a power-consuming device, such as a car or a portable powered device, for the benefit of utilizing the power generated by the fuel cell.

Claims 51-54, 57, 60-64, 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agruss (US 3503808) as applied to claims 49 and 58 in view of Pekala (US 2002/0142214).

Agruss discloses all the elements of claims 49 and 58 and are incorporated herein. Agruss does not disclose the specifics of the pores. However, Pekala discloses a porous substrate with through pores containing electrolyte. The porous substrate supports gel electrolyte on both sides and liquid electrolyte is filled in the pores. [0047].

Pekala discloses that the pores vary in diameter along a thickness of the substrate (applicant's claims 51 and 60). The pores also branch within the substrate (applicant's claims 52 and 61). The branching results in a greater number of pore openings on one side than on another side (applicant's claims 53 and 62). The Office notes that since branching occurs randomly on both sides of the substrate, various portions of the substrate will meet claims 54 and 63 in which the anode is disposed on the side with greater pores. Further, since pores that contain multiple branching will be necessarily be larger than pores without branching or pores with a single branch, the average pore size containing multiple branching are larger than the average pore size of a single branching or no branching (applicant's claims 57 and 67). The pores are parallel through the substrate (applicant's claim 64). See Fig 5a.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Agruss' electrolyte substrate with Pekala's porous

Art Unit: 1745

substrate for the benefit of more evenly distributing the Agruss' electrolyte in the fuel cell.

Claims 55, 56, 65, 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agruss (US 3503808) as applied to claims 49 and 58 and incorporated herein, and in view of Mardilovich (Hybrid Micromachining and surface microstructuring of Alumina Ceramic, 2000).

Agruss discloses all the elements of claims 49 and 58. Agruss does not disclose that the substrate is made of alumina. Agruss discloses that the porous separator can be made of any suitable material which has the necessary porosity, and inertness to the cell material and high temperature stability are required. Mardilovich teaches of a porous substrate made of alumina ceramic. Mardilovich teaches that the alumina ceramic micromachined occupies a very important niche for applications where high temperature stability is crucial (pg. 33). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an alumina ceramic material as the porous substrate for the benefit of achieving high temperature stability.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

Art Unit: 1745

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ckl

Cynthia Lee

Patent Examiner


JONATHAN CREPEAU
PRIMARY EXAMINER